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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,025	09/23/2005	Seiji Tanimoto	277030US0PCT	7360

22850 7590 08/31/2010
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EXAMINER

BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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08/31/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/550,025	Applicant(s) TANIMOTO ET AL.	
	Examiner MICHAEL M. BERNSHTEYN	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/18/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 13-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 13-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action follows a response filed on August 18, 2010. Claims 1, 4 and 26 have been amended; claim 28 have been added; no claims have been cancelled.
2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 18, 2010 has been entered.
3. In view of the amendment(s) and remarks the objection and the rejection of claim 26 under 35 U.S.C. 112, second paragraph have been withdrawn.
4. Claims 1-5 and 13-28 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 28 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification discloses that “preferably, the 1,2-glycol bond content of the vinyl alcohol polymer is at least 1.9 mol%, more preferably at least 1.95 mol%, even more preferably at least 2.0 mol%, most preferably at least 2.1 mol%” (page 13, lines 12-15). Example 11, which was mentioned by the Applicants as a support for adding the claim 28 (see remarks, page 7, 1st paragraph) recites the following: “The same process of emulsion polymerization as in Example 2 was carried out, except that PVA-8 (having a 1,2-glycol bond content of 2.5 mol%, a degree of polymerization of 500 and a degree of saponification of 88 mol%) was used in place of PVA-I. Thus obtained, the aqueous emulsion was evaluated, and its results are given in Table 1” (page 44, lines 11-17).

Thus, the disclosure does not give any indication that that newly claimed limitation “at least 2.5 mol% of a 1,2-glycol bond” is critical for the claimed invention, and that example 11 shows unexpected results; so this question was not satisfactorily resolved. Therefore the newly claimed subject matter not properly described in the application as filed, and it consequently raises doubt as to possession of the claimed invention at the time of filing.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Newly amended claim 1 recites the limitation “at least 1.9 mol% of a 1,2-glycol bond”, and new claim 28 recites the limitation “at least 2.5 mol% of a 1,2-glycol bond”.

It is noted that such limitations do not contain the range of possible values for the concentration of the 1,2-glycol bond because they do not have the upper limits. So it can be accepted that the concentration of the 1,2-glycol bond can be 40-50 mol% and even more, which clearly contradicts to the claimed invention. Therefore such limitations as “at least 1.9 mol% of a 1,2-glycol bond” and “at least 2.5 mol% of a 1,2-glycol bond” accordingly render the claims 1 and 28 indefinite because the scope of the claimed subject matter cannot be determined by one having ordinary skill in the art.

Claim 1 also recites the limitation “a tensile strength of at least 100 kg/cm²”, and claim 28 recites the limitation “a tensile strength of at least 160 kg/cm²”.

It is noted that such limitations do not contain the range of possible values for the tensile strength because they do not have the upper limits. So it can be accepted that the tensile strength can be 500-1000 kg/cm² and even more, which clearly contradicts to the claimed invention. Therefore such limitations as “at least 1.9 mol% of a 1,2-glycol bond” and “at least 2.5 mol% of a 1,2-glycol bond” accordingly render the claims 1 and 28 indefinite because the scope of the claimed subject matter cannot be determined by one having ordinary skill in the art.

Claim Rejections - 35 USC § 102

7. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

Claim Rejections - 35 USC § 103

8. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

9. Claims 1-3, 5 and 13 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kim et al. "Poly(vinyl alcohol) Stabilization of Acrylic Emulsion Polymers Using the Miniemulsion Approach", *Macromolecules*, 2003; 36 (15), p. 5573-5579, for rationale recited in paragraph 6 of Office Action dated May 19, 2009, and comments below.

10. Claims 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Poly(vinyl alcohol) Stabilization of Acrylic Emulsion Polymers Using the Miniemulsion Approach", *Macromolecules*, 2003; 36 (15), p. 5573-5579 as applied to claims 1-5 and 13 above and further in view of Tanimoto et al. (JP 2002-308939 A), for rationale recited in paragraph 9 of Office Action dated March 18, 2010, and comments below.

11. Claims 25 and 27 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kim et al. "Poly(vinyl alcohol) Stabilization of Acrylic Emulsion Polymers Using the Miniemulsion Approach", *Macromolecules*, 2003; 36 (15), p. 5573-5579, for rationale recited in paragraph 8 of Office Action dated March 18, 2010, and comments below.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over "Poly(vinyl alcohol) Stabilization of Acrylic Emulsion Polymers Using the Miniemulsion Approach", *Macromolecules*, 2003; 36 (15), p. 5573-5579).

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The disclosure of Kim's reference resided in § 9 is incorporated herein by reference.

With regard to the limitations of claim 4, Kim does not disclose that the vinyl alcohol polymer comprises from 2.1 to 3.2 mol% of a 1,2- glycol bond.

In the absence of showing the critically, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the concentration of a 1,2-glycol bond in the vinyl alcohol polymer in order to obtain the (meth)acrylic resin emulsion having desirable level of the claimed properties.

Furthermore it is noted that the concentration of 1,2-glycol bond in the vinyl alcohol polymer is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per **In re Boesch and Slaney** 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382: "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." **In re Aller**, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.).

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13. Claims 26 and 28 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kim et al. "Poly(vinyl alcohol) Stabilization of Acrylic Emulsion Polymers Using the Miniemulsion Approach", *Macromolecules*, 2003; 36 (15), p. 5573-5579).

The disclosure of Kim's reference resided in § 9 is incorporated herein by reference.

With regard to the limitations of claims 26 and 28, Kim discloses a (meth)acrylic resin emulsion and a method for producing of (meth)acrylic resin emulsion. The emulsion consists of n-butyl acrylate and methyl methacrylate (50/50 wt %) employing poly(vinyl alcohol) (PVA) as a stabilizer and hexadecane (HD) as a costabilizer (abstract).

The obtained poly(vinyl alcohol) (PVA) has a degree of hydrolysis (DH) (or a degree of saponification) 87-89%, and a degree of polymerization (DP = 500), which are clearly within the claimed ranges (p. 5574, the right column, Experimental Section).

With regard to that said emulsion has a "factor a" of at least 0.9 that indicates the particle size distribution width of the emulsion and of which a film formed at 20°C and 65 % RH to have a thickness of 500 µm has a tensile strength of 110 to 300 kg/cm², or at least 160 kg/cm², a dissolution of said film is at most 5% when dipped in an aqueous 1 N sodium hydroxide solution at 20°C for 24 hours, and that the vinyl alcohol polymer comprises at least 2.5 mol% of a 1,2-glycol bond, instantly claimed in claim 28, Kim is silent about it. However, in view of substantially identical (meth)acrylic resin emulsion

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between Kim and instant claims, it is the Examiner position that Kim's (meth)acrylic resin emulsion inherently possesses these properties. Since the USPTO does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. **In re Fitzgerald** 619 F 2d 67, 70, 205 USPQ 594, 596 (CCPA 1980).

Even assuming that the claims are not anticipated by the reference, it would have been obvious to one of ordinary skill in the art to make the polymer having the claimed properties using the claimed process because it appears that the reference generically embrace the claimed subject matter and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed subject matter and the subject matter of the prior art examples give rise to unexpected products.

Response to Arguments

14. Applicant's arguments filed on August 18, 2010 have been fully considered but they are not persuasive.

15. It appears that the focal Applicants argument resides in the contention that Kim does not suggest the presently claimed emulsions, because there is no suggestion whatsoever in Kim of using a different PVA--the only one used is Poval 205. Therefore, the limitation of present claim 1: "comprises at least 1.9 mol% of a 1,2-glycol bond" is not disclosed or suggested by this reference, and there is no motivation in Kim to change the 1,2-glycol bond content. Thus, the present claims are not obvious in view of Kim (pages 7, the last paragraph).

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16. Regarding the (meth)acrylic resin emulsion limitations in view of substantially identical vinyl alcohol polymer having the same degrees of saponification and of polymerization, and the dispersoid, which is a polymer selected from the group consisting of an acrylate monomer unit and a methacrylate monomer unit being used by both Kim and the applicant, it is the Examiner position to believe that the product, i.e. the (meth)acrylic resin emulsion of Kim is substantially the same as the (meth)acrylic resin emulsion recited in claims 1 and 28, even though obtained by a different process, consult *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Since the USPTO does not have proper equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. "[E]ven though product-by-process claims are limited by and defined by the process; determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

As it was confirmed by the Applicants (page 7, 3rd paragraph), it is noted Kim discloses the use of PVA "Poval 205" (see "Materials" paragraph under "Experimental Section" on page 5574 of Kim); Poval 205 is the same PVA used in Example 1 of the present application.

Furthermore, it is noted that there is no any example in Table 1 having the claimed concentration of at least 1.9 mol% of a 1,2-glycol bond, and all examples

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except for two (Examples 11 and 12) have the concentration of 1.6 mol% of a 1,2-glycol bond.

In the absence of criticality in the specification (Examples 1-12) of maintaining the definite concentration of 1,2-glycol bond in the vinyl alcohol polymer, it is the Examiner position to believe that that the product, i.e. the (meth)acrylic resin emulsion of Kim is substantially the same as the (meth)acrylic resin emulsion recited in claims 1 and 28, even though obtained by a different process, consult ***In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).***

It is worth to mention that Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims ...In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g) for a discussion of criticality and unexpected results.

17. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that in the emulsion evaluation (where the emulsion is applied to a substrate and dried to result in a film), the film resulting from the emulsion of Example 11 had a higher film strength and a higher resistance to swelling than the film derived from Example 2 (page 8, 2nd paragraph)) are not recited in the rejected claim(s). Although the claims

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are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

18. In response to applicant's argument that Kim especially fails to suggest new claim 28: "wherein said emulsion has a "factor a" of at least 0.9...a tensile strength of at least 160 kg/cm²...the vinyl alcohol polymer comprises at least 2.5 mol% of a 1,2-glycol (page 8, 3rd paragraph), please, see paragraph 13 of current Office action.

19. In response to applicant's argument that the results obtained for the emulsions of the present claims (discussed above) would not have been foreseen by one of ordinary skill in the art considering such references at the time of the present invention (page 8, 4th paragraph), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael M. Bernshteyn/
Examiner, Art Unit 1796

/M. M. B./
Examiner, Art Unit 1796

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